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ABSTRACT

This paper describes a project at the Lone Star Elementary School in Jacksonville, Florida developed to jointly investigate the effects of specific computer technology and training on: (1) teaching and learning in a first and second grade classroom; (2) the professional development of directing teachers and teaching interns; and (3) the university teacher education program, the cooperation, and the public school system. The computer equipment and technology used was a combination of existing school resources and equipment loaned temporarily by IBM and the University of North Florida. Evaluation of the project was delivered by examination of the specific products created by various participants. The products are described for: teaching interns; first and second grade students; and the IBM teacher trainer. The effects of the project on instruction, learning, and professional development of teachers and interns are described, as well as its effects on the Lone Star Elementary School, the University of North Florida, and IBM. The future direction of the Lone Star 2000 Project is also noted. Sample reproductions of student projects are included. (AEF)

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LONE STAR 2000: SOARING INTO THE FUTURE WITH TECHNOLOGY

Dennis M. Holt
Paula McAllister

From the chorus of oohs and aahs going up around the room you could tell these first grade students' attention is riveted on what they are doing. Is it a personal visit by one of the Mighty Morphin' Power Rangers? Or perhaps a visit from Santa Claus? No. Mrs. Cheryl Claxton's first grade class at Lone Star Elementary School in Jacksonville, Florida is participating in a science lesson on light sources in their classroom, measuring their relative values, and the effects the light would have on the growth of plants.

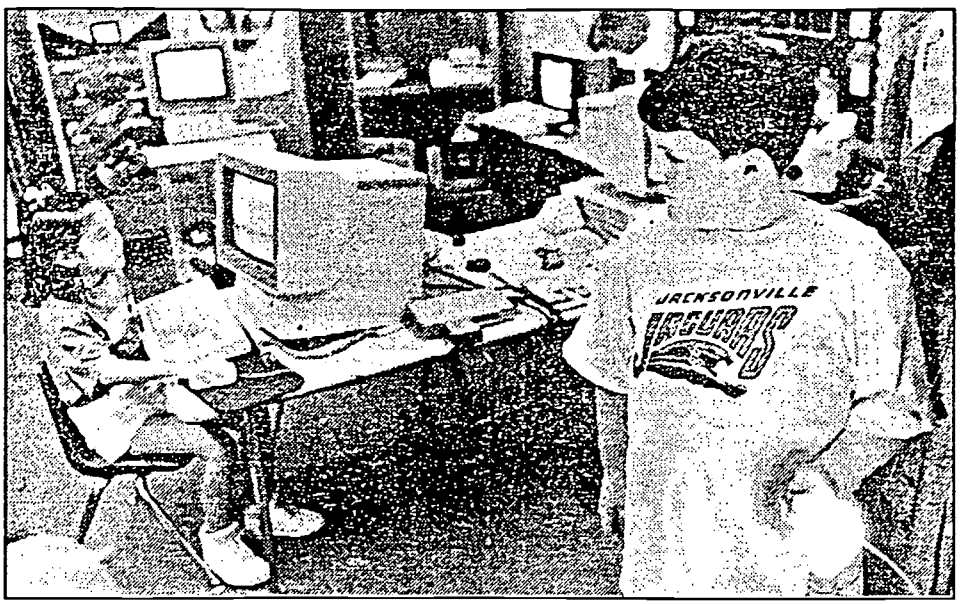
Insert Figure 1 here.

What causes a phenomenon such as this? The cause is a new enthusiasm for teaching and learning generated by something that has come to be called the "Lone Star 2000 Project."

BACKGROUND

This project is an outgrowth of a unique cooperative venture

Figure 1



— Wes Lester/staff

Danny Swett, 7, and Gina Kim, 6, at the computer, team up during an experiment with a light bulb to determine the best area in the classroom for growing plants.

between the University of North Florida, the IBM Corporation and the Duval County Public School District. The project was initiated by the Chairman of the Division of Curriculum and Instruction at the University of North Florida in cooperation with the K-12 Team Leader of EduQuest, a division of the IBM Corporation, and the principal of Lone Star Elementary School in Jacksonville, Florida. What follows is a description of the outcomes of the project's first year.

PURPOSE

The purpose of this ongoing project is to jointly investigate the effects of specific computer technology and training on: (a) teaching and learning in a first and second grade classroom; (b) the professional development of directing teachers and teaching interns; and (c) the university teacher education program, the corporation, and the public school system.

PARTICIPANTS

Participants in the project included two classroom teachers, two interns, a university teacher educator, a school principal, an IBM EduQuest teacher educator (herself a teacher), twenty-four first grade students, and twenty-eight second grade students.

COURSEWARE

The following IBM courseware and products were involved in the training and classroom applications:

LinkWay Live A multimedia authoring system that incorporates text, graphics, and audio.

Stories and More I & II A literature-based reading program

with interactive, animated activities. (Demonstration CD version)

Nature of Science Light Investigation Series A science curriculum that allows students to accurately investigate the properties of the world around them. (Demonstration CD version)

Mammals: A Multimedia Encyclopedia A multimedia exploration CD-ROM program.

TECHNOLOGY AND EQUIPMENT

The computer equipment and technology used was a combination of existing school resources and temporarily loaned equipment from IBM and the University of North Florida. The following is a list of the technology equipment used during the project.

* 1 IBM EduQuest Model 40 computer with built-in CD-ROM and sound card used in the first grade classroom.
* 1 IBM Model 35 SX computer with digispeech and an external CD-ROM drive used in the second grade classroom.
* 1 Pro PC/TV projection device shared by both classrooms. (Used for displaying computer images on a large screen monitor and allowing the use of 1 computer for whole-class instruction.
* 1 27" TV monitor and VCR shared by both classrooms. (Used in conjunction with the Pro PC/TV device).
* 1 set of PSL light probes shared by both classrooms. (Used in conjunction with the Nature of Science Light Investigation courseware to measure and record light

intensity data).

* 1 Cannon ZapShot camera shared by both classrooms. (Used to take photographs of the first and second grade students, teachers, and other project participants).
* 1 IBM Model 30 with a COMPUTEREYES video digitizer. (Used at the University of North Florida by the teaching interns to digitize Zapshot camera photos for use in the LinkWay Live electronic folders).

FORMAL TRAINING ACTIVITIES

The project was designed to provide the directing teachers and teaching interns with minimal, but specific training in the use of the necessary hardware, courseware and technologies involved, and facilitate their transfer of knowledge of these skills to the students in as short a time as possible. Training and follow-up support was provided by the IBM EduQuest teacher educator. Participants in the training were the first and second grade classroom teachers, two teaching interns, the school principal, and the university teacher educator. Specific times were set aside for this training and substitutes were provided for the teachers by the school. Sessions were held at the school and extra equipment was borrowed so each participant could experience the maximum hands-on training time. The training procedures and timetable followed are shown below.

1/2 day

* Overview of the project and training in the use of the demo versions of Stories and More and Nature of Science

Light Investigation and the PSL light probe equipment.

* Introduction to TLC, which is the IBM concept of Teaching and Learning With Computers.

1 day

* Using LinkWay Live to create electronic teacher and student folders with text and graphics.
* Using the LinkWay LWPaint program to create drawings.

1/2 day

* Use of the Mammals: A Multimedia Encyclopedia.
* Hookup and use of the Pro PC/TV device with the computer, VCR, and TV monitor.

1 day

* Taking student pictures with a Cannon Zapshot camera.
* Digitizing pictures with COMPUTEREYES and placing the pictures in the LinkWay Live folders.
* Mechanics of copying folders to disk so children could have individual copies.

The total length of the initial project from the first day of training to the collection of "products" on the last day was 9 weeks.

PROJECT PROCEDURES

1. At the beginning of the project the participating teachers and interns were introduced to new ways of using instructional technology in the classroom to enhance their teaching and student's learning. This introduction was facilitated through

hands-on training by the IBM teacher educator as detailed in the training section above. During this training the teachers and interns produced their own LinkWay Live folder that would eventually include samples of theirs and their students' work for inclusion in their teacher portfolios.

2. Following the training sessions, the first grade intern provided whole-class science and reading instruction to 26, first grade students, using Stories and More and the Nature of Science Light Investigation with the probes. The second grade intern provided her 28 students with whole-class instruction in social studies and science using the Mammals: A Multimedia Encyclopedia.

   These whole-class instruction sessions were conducted using one computer, one large screen monitor and the Pro PC/TV projection device. Videotaping of each session was done for later program evaluation, for use by the interns as evidence of their technology skills for portfolio documentation, and job-seeking activities.

   In addition to the curriculum content presented, the whole-class instruction sessions also enabled the interns to introduce the students to the use of the computer, the courseware, CD-ROM technology, and the science probes.

3. Following the whole-class instruction, the students obtained hands-on experience with the hardware and courseware in the classroom by rotating throughout the day in various learning groups. The group sizes varied from 2-4 students. The intern

and peer tutor "experts" assisted as necessary. The first grade students concentrated on Stories and More and the Nature of Science and the second grade students on the Mammals: A Multimedia Encyclopedia. This decision was made based on the correlation of the content in these programs with the current classroom curriculum.

4. Next, the interns introduced their students to the basics of the LinkWay Live authoring system and the LinkWay Live paint program in various small group sessions involving 3-5 students. The second grade students produced their own folders in cooperative learning teams of two, with each member contributing equally. The second grade students used the Mammals: A Multimedia Encyclopedia to research an animal of their choice and then demonstrated what they learned by creating a LinkWay Live folder that included pictures, drawings, and text to illustrate their knowledge.

   The first grade students worked individually on their folders with assistance from the intern, teacher, or a classmate who served as a peer tutor. The intern created LinkWay Live paint pictures to represent the stories the children studied in Stories and More. Each student selected the appropriate picture, placed it in their LinkWay Live folder, and added text to demonstrate their knowledge of the story content. After the Nature of Science light experiment, each first grade student also added a page to their folder, demonstrating with a color bar graph their understanding of the results of the

experiment.

5. When the folders were all created, the IBM teacher educator took a picture of each first and second grade student and the teachers and interns, using a Cannon Zapshot camera. The interns were taught how to digitize these pictures so they could be included in the LinkWay Live folders. The second grade students added comments in their LinkWay Live folders below their pictures reflecting their feelings about working with the computer technology.
6. LinkWay Live allows the making of a "runtime" disk so that folders can be viewed on any IBM compatible computer. The interns made a runtime disk for each student including their electronic folder and its' contents. Copies were also made for them, the teachers, the principal, the IBM teacher trainer and the University of North Florida teacher educator.
7. Products and evaluation comments were collected from each of the participants and used to analyze the results and outcomes of the project.

Insert Figure 2 and Figure 3 here.

EVALUATION AND PRODUCTS

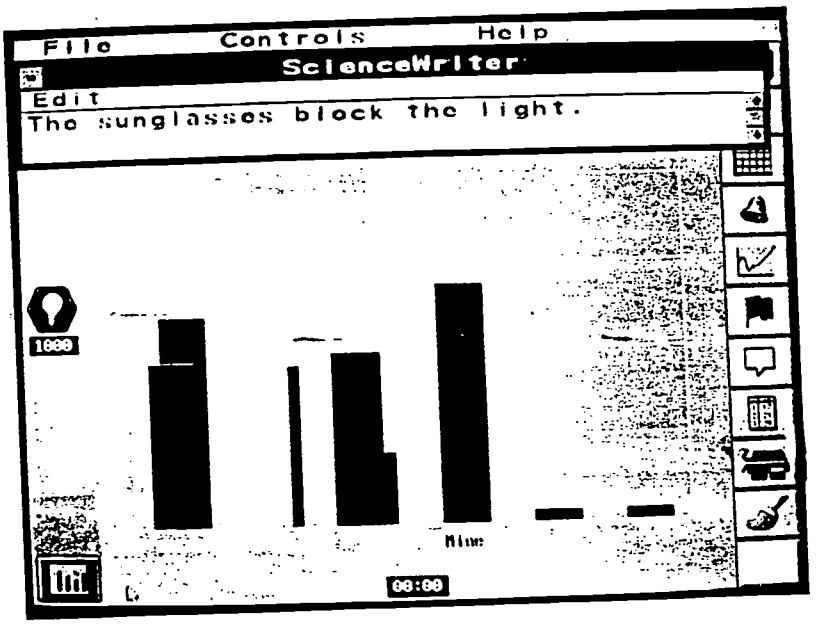
Evaluation of the project, in large part, was determined by examination of the specific "products" created by the various participants. These products included:

Teaching interns

Nature of Science

A Hands-On Approach to Real-World Learning

Nature of Science provides rugged, easy-to-use tools for students to gather data in real time about phenomena including motion, light, and temperature. The *Nature of Science* software takes students through a curriculum unit of hands-on experiments—and also encourages young people to turn their classroom into a working science lab via investigations that they themselves develop.



* 1 video-taped lesson using technology for whole class instruction.
* A LinkWay Live electronic folder on a floppy disk showing student photographs and examples of student writing, science experiments, and drawings.
* A daily journal detailing training, thoughts, actions, and experiences taking place during the various steps of the project.
* A notebook of training materials.
* A parent open house displaying the electronic folders created by the students.

First grade students

* Individual LinkWay Live electronic folders with their photograph, a book report, and a graph showing what they learned during the Nature of Science light experiment.

Second grade students

* Individual LinkWay Live electronic folder with their photograph, background information on computer usage, comments on their feelings about the technology experience, and results of their research on a specific animal using the Mammals: A Multimedia Encyclopedia.

IBM teacher trainer

* Customized training material designed to provide precise, succinct directions in the use of the technologies involved.
* A LinkWay Live multimedia presentation of the Lone Star

2000 Project for presentations at profesional conferences and for fund raising activities by the school.

PROJECT OUTCOMES

The purpose of the Lone Star 2000 Project was to investigate the effects of specific computer technology and training on: (a) teaching and learning in a first and second grade classroom; (b) the professional development of directing teachers and teaching interns; and (c) the university teacher education program, the corporation, and the public school system. The following are some of the effects documented in the three areas.

What were the effects of the project on instruction at Lone Star Elementary School?

Mrs. Cheryl Claxton, first grade teacher

This project generated an interest and enthusiasm for teaching and learning with computers. Many teachers who were using little or no technology in their classrooms became curious, interested, and began asking for more powerful computers, more software, laserdisc players, and so forth. This project changed the way I organize my classroom and instruction. I still use whole group and small group instruction, but TLC (Teaching and Learning with Computers) has become an important part of our day.

Mrs. Cheri Toban, second grade teacher

For me - exhilaration, to see children so eager to write reports when report writing with paper and pencil often brings groans.

For our faculty - the project generated an interest on the

part of many teachers to experience technology and new software in their own classrooms.

What were the effects on student learning?

Cheryl Claxton, first grade teacher

The students were excited and could hardly wait for their turn on the computer each day. The stories in Stories and More came alive. It was amazing to me that students who were struggling with reading, began learning vocabulary and were actually comprehending what they read. I also felt that their writing skills improved through the use of the computer. The children enjoyed being watched and observed. They were really proud of their work and derived great pleasure from sharing it with other children, parents, teachers, a news reporter, and the principal. Another impact on student learning came from peer interaction as the students helped one another.

Nancy Cohan, first grade intern

The probes and equipment available with the Nature of Science allowed students to interpret data from a graph and then create their own bar graph on the computer as they conducted their experiments. Finally, the students interacted productively with each other in small groups and cooperatively created a culminating LinkWay Live folder that demonstrated their knowledge of the subject matter.

Several students could type on the computer more easily than writing with a pencil because of motor skill development. These students benefited from the availability of the computer.

Cheri Toban, second grade teacher

The Mammals CD with the Sony speakers made our whole animal unit come alive! They didn't mind reading about an animal. They learned to take notes (remember this is second grade), transfer those notes into sentences, and put the sentences into paragraph form (in their LinkWay Live folders). They were eager for science units that followed our animal unit of study.

Nancy Krammer, second grade intern

The use of the LinkWay Live multimedia authoring system provided a means for the students to document objectives met in science, math, social studies and language arts. Review of the electronic folders gave me an opportunity to make a comprehensive assessment of student achievement.

The Mammals: A Multimedia Encyclopedia CD-ROM disk was specifically beneficial in the second grade curriculum unit which focused on environments. Students were not only able to read about the mammals they were studying but, because of the technology, were able to hear them as well.

What were the effects of the project on the professional development of teachers and interns?

Mrs. Cheryl Claxton, first grade teacher

The training is an essential part of the success of this project. Many teachers are anxious and reluctant about teaching and learning with computers. Paula McAlister did an excellent job of training those of us involved.

Cheri Toban, second grade teacher

Paula's gentle methods of computer training left this confirmed "MAC user" feeling that maybe "IBMs" weren't as hopelessly complicated as I thought they were.

What were the effects of the project on the University of North Florida?

Dr. Dennis Holt, Chairman of the Division of Curriculum and Instruction

The project is helping the College identify specific pre-service training needs in the use of instructional technologies for interns and faculty intern supervisors. It is contributing to the restructuring of our teacher education curriculum. The project's outcomes have important implications for the development of portfolios which help document the intern's teaching and learning progress throughout the internship experience.

What were the effects of the project on Lone Star Elementary School?

Verna Fields, Principal, Lone Star Elementary School

The Lone Star 2000 project assists in the fulfillment of the goals and objectives of the schools' School Improvement Plan. The project also brings visibility to the school for its students, teachers, interns and administrators.

Cheryl Claxton, first grade teacher

Participating in this project was exciting for me as a teacher. I thoroughly enjoyed seeing and hearing the reactions of the students. I was also amazed at how quickly the students seemed to operate the equipment and at how much they learned.

Cheri Toban, second grade teacher

It was a terrific experience for the children, our intern, myself, and oh yes - the parents. It was fun, educational, unique, and the children felt so very proud of their finished products.

What were the effects of the project on IBM?

Ruth Ann Smith, North Florida K-12 Team Leader

The project re-emphasizes the importance of the need for training and follow-up support for the interns and teachers when implementing technology into the classroom. When a school undertakes a project that involves hardware, software, and new methods of using these resources in the classroom the immediate availability of technical and training support is critical to the successful outcome of the project.

The utilization of technology in the classroom can assist in dramatically restructuring the way teachers teach and children learn. However, teacher support, training and follow up are of utmost importance.

WHERE DO WE GO FROM HERE?

There is a great commitment from all of the participants in the Lone Star 2000 Project to not only continue, but to expand. As a result of this commitment the following actions have been taken.

1. The IBM Corporation has donated networked versions of mathematics, science, and reading courseware to Lone Star, valued in excess of $20,000. IBM has also agreed to provide the training that accompanies this courseware.
2. Lone Star Elementary School has written three technology

funding grants, two of which have already been awarded. The University of North Florida has submitted one grant for federal support of the project. These grants are designed to provide additional hardware, training, and technology support for the continuation and expansion of the project in several more classrooms.

3. Following the success of this project during the 1994 spring term, three interns participated in a continuation and refinement of the project during the 1994 fall term in 1st, 2nd and 3rd grade classrooms. For the 1995 spring term the University of North Florida is working with three interns continuing the project in two 1st grade classrooms and a 2nd grade classroom, with ongoing support from the IBM teacher educator and a supervising professor.

4. As a model for implementing technological change in classroom teaching and learning, the Duval County Public School District has decided to implement the Lone Star 2000 Project format in three of the schools involved in the Urban Systemic Initiative Program. USI funds will be used to implement this portion of the project.

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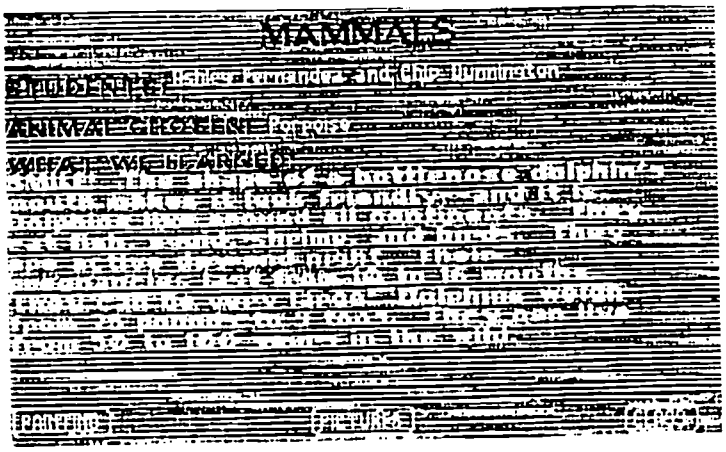

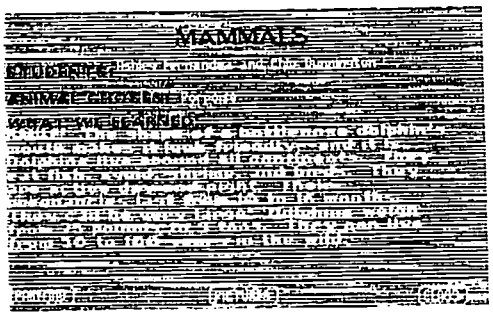

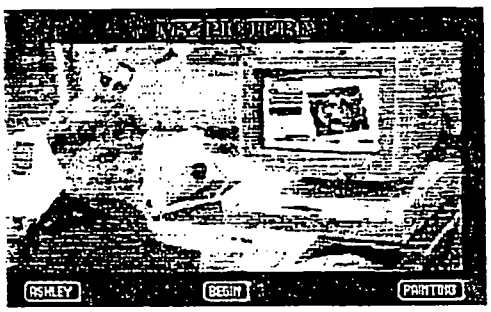

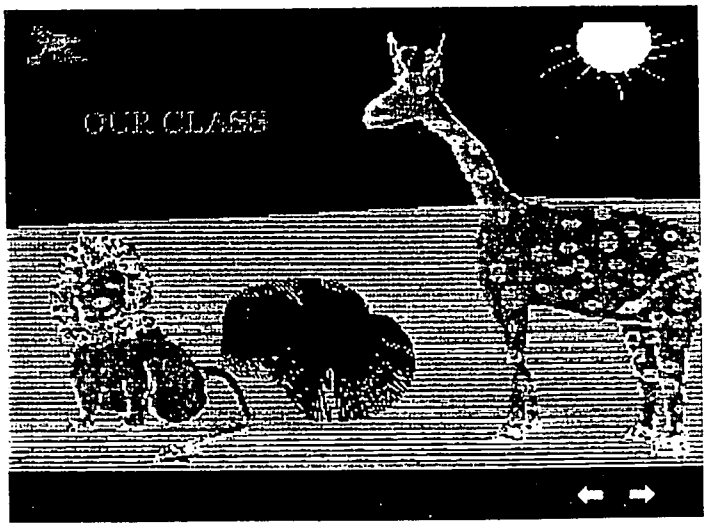

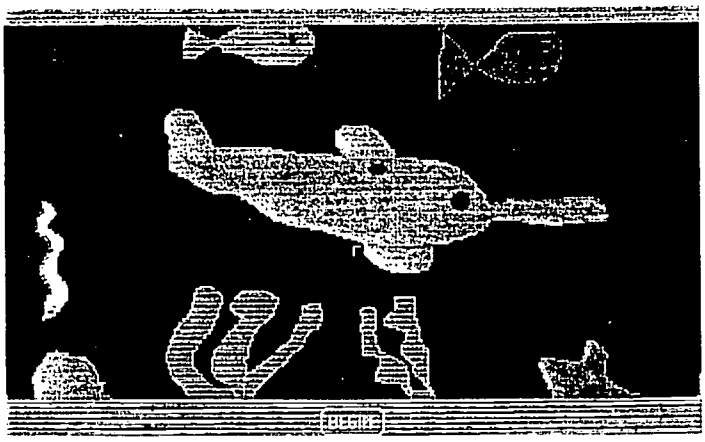

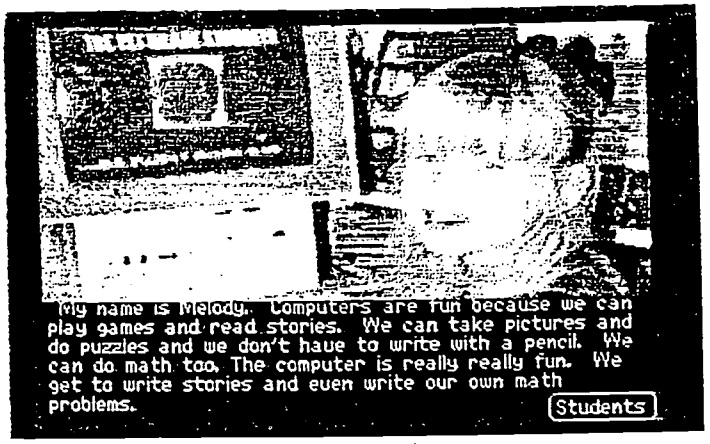

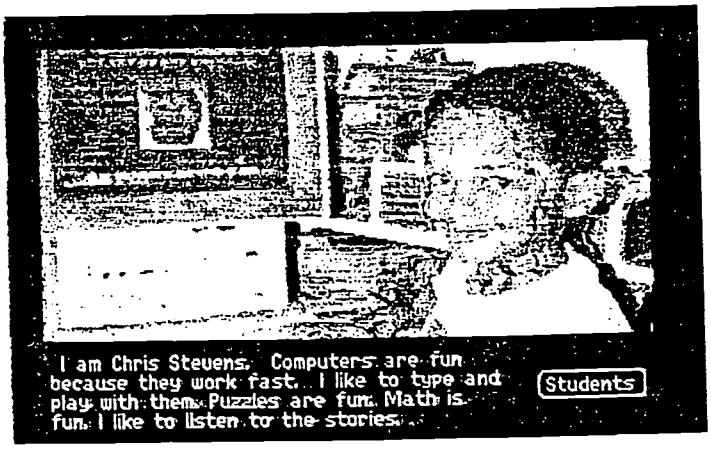

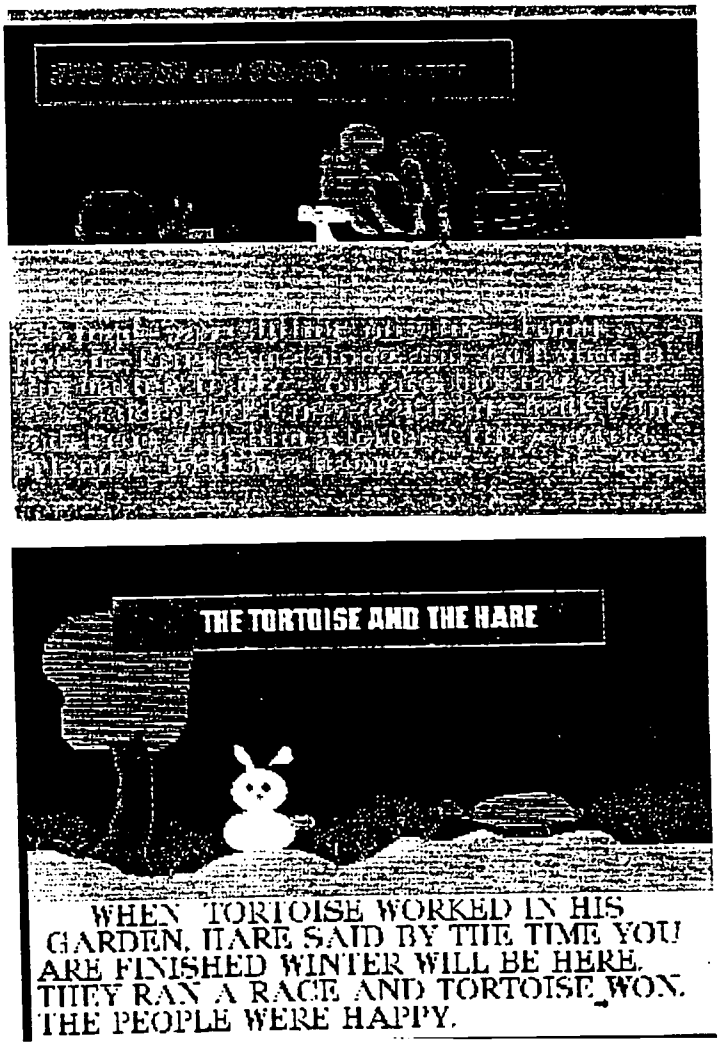

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